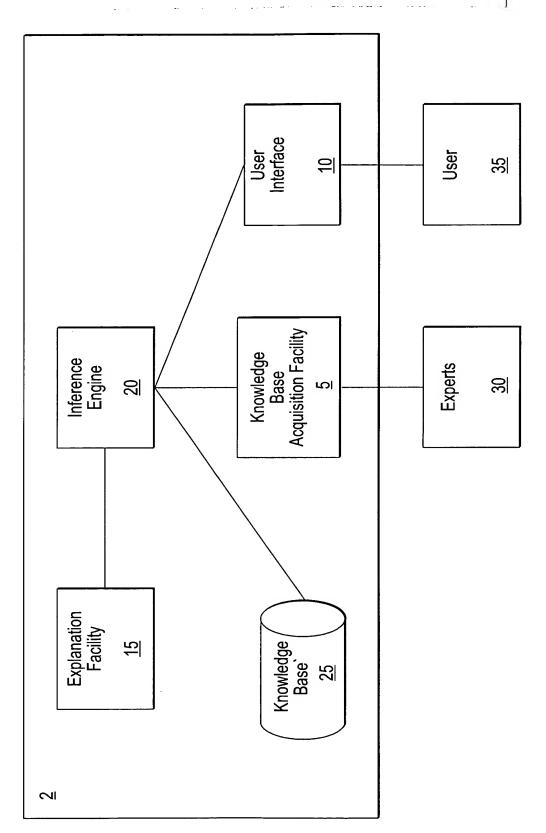
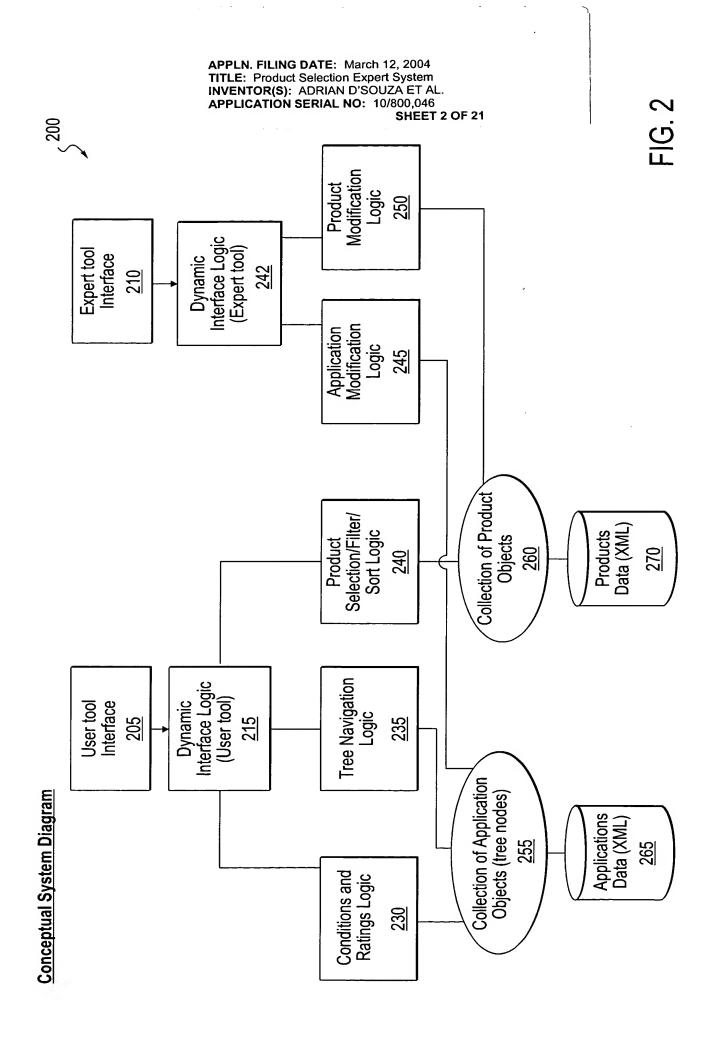
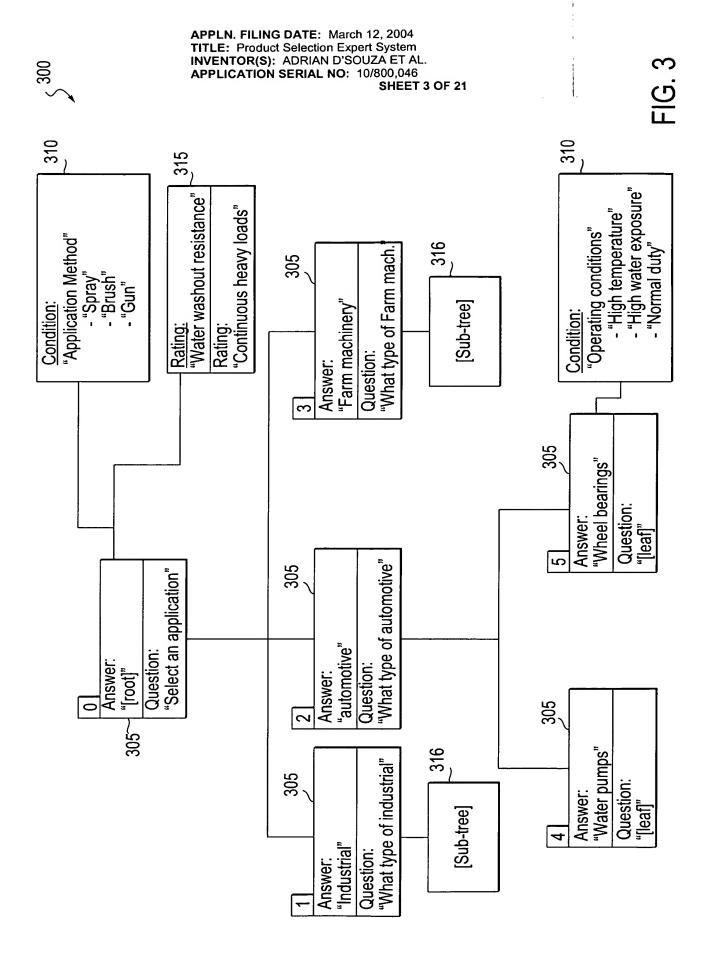


SHEET 1 OF 21



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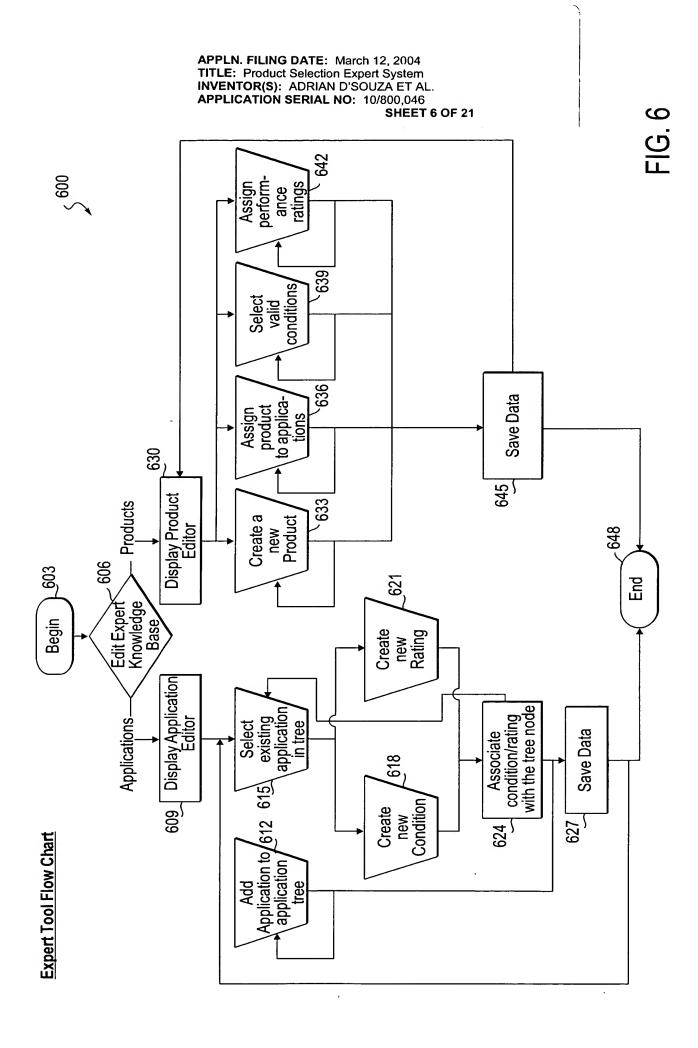
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TITLE: Product Selection Expert System
                                             INVENTOR(S): ADRIAN D'SOUZA ET AL.
                                             APPLICATION SERIAL NO: 10/800,046
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                                                                        SHEET 4 OF 21
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        <choice>Brush</choice>
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APPLN. FILING DATE: March 12, 2004

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APPLN. FILING DATE: March 12, 2004
                                           TITLE: Product Selection Expert System
                                           INVENTOR(S): ADRIAN D'SOUZA ET AL.
                                           APPLICATION SERIAL NO: 10/800,046
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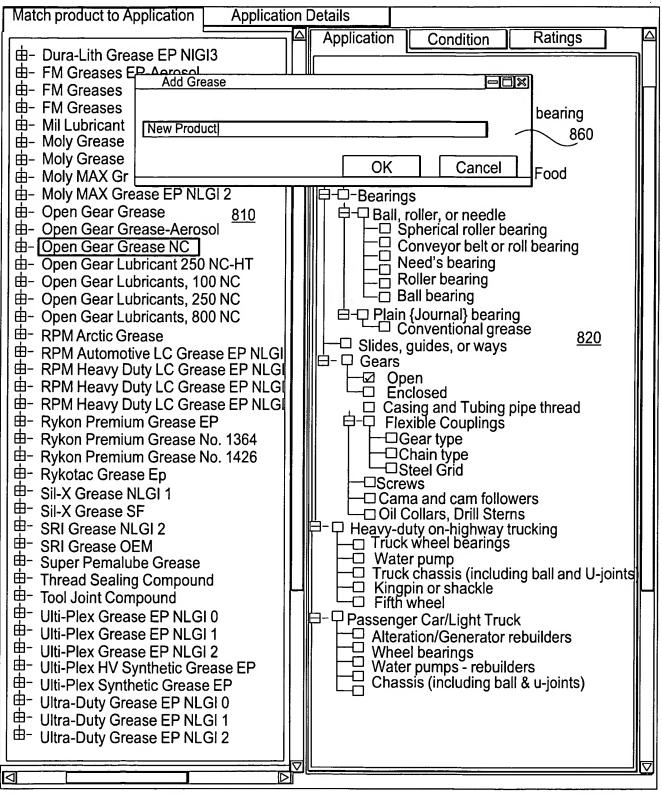


APPLN. FILING DATE: March 12, 2004 TITLE: Product Selection Expert System INVENTOR(S): ADRIAN D'SOUZA ET AL. APPLICATION SERIAL NO: 10/800,046 **User Tool Flow Chart SHEET 7 OF 21** 5⁷⁰⁰ 703 Begin Answer application 706 question (navigate the tree) No 709 Application fully specified (tree leaf node) Yes Display relevant conditions and 712 ratings 715 718 721 Select Change an Specify rating Condition application preference answer answer 724 727 Filter Products **Score Products** Select more Change Conditions .more_ - 731 ratings **Update Product** display 734 Review report and web links 737 End FIG. 7

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Expert System

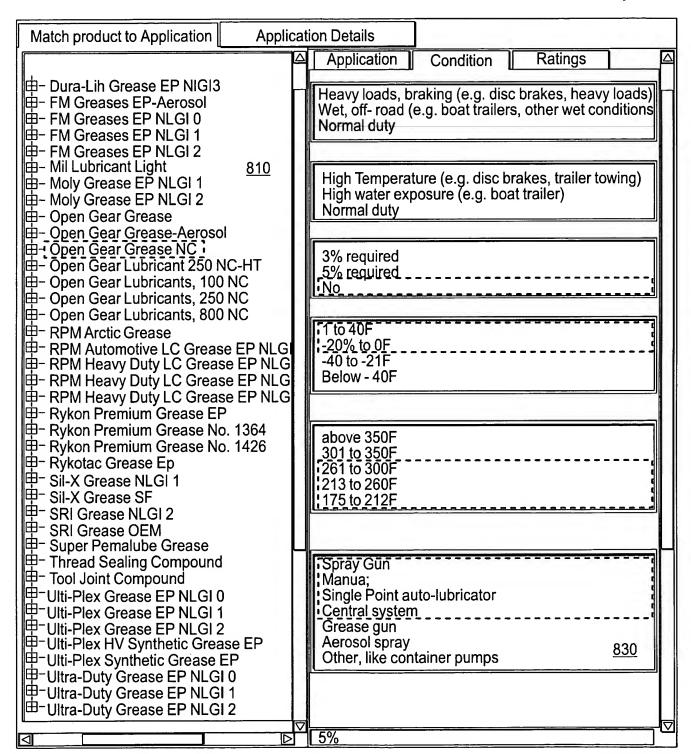
Step 1 Anew product is added and its appropriate application is checked off in a simple check off box.



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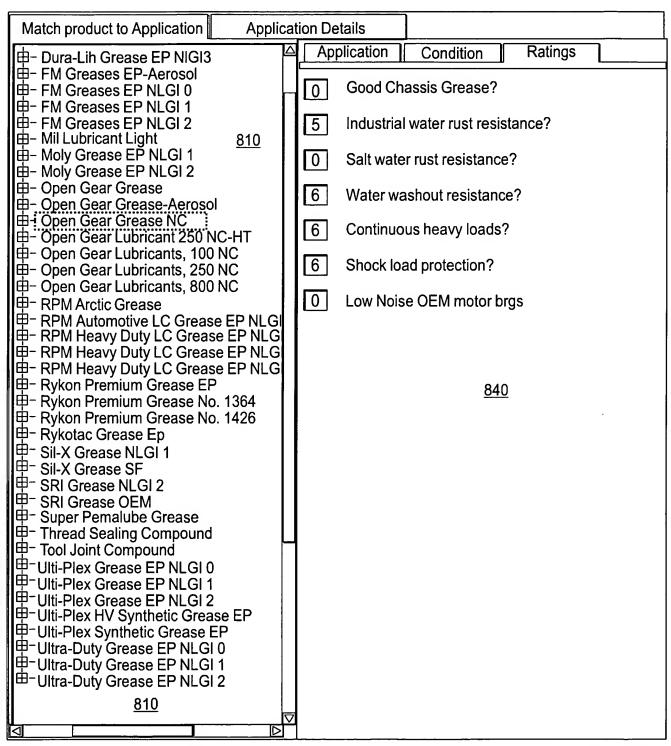
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Step 2- User definable conditions which is acceptable for this product or service is defined by highlighting appropriate single conditions or combinations of conditions.



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Step 3- Expert assessments of ratings for each of the products or service in terms of importance to the end user are assigned by experts



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Programming steps - Adding categories or subcategories is made under each category item, this lists follow up questions for the end user.

File Edit Help

Match product to Application | Application Details Cotton picker spindles Answer to previous question □ Railroad Ball, roller, or needle Rail or flange Journal (axle0 roller bearing -Traction motor gear 870 Industrial, Marine, or Food Next question to ask Chains Which bearing type? - Wire rope Bearings

| Ball roller or needle Rating questions: Spherical r Collapse Conveyor I Edit Need's bea Add Roller bear - Ball bearin Delete ⊟-Plain (Journal) bearing Condition questions: Conventional grease Approx. bearing diameter Slides, guides, or ways Ball, roller, needle rpm Gears Open ☐ Enclosed☐ Casing and Tubing pipe thread☐ Flexible Couplings Condition choices: Gear type 850 Chain type Steel Grid Screws Cams and cam followers Drill Collars, Drill Sterns Heavy-duty on-highway trucking Truck wheel bearings Water pump Truck chassis (including ball and U-jooints) Kingpin or shackle Fifth wheel Passenger Car/Light Truck Alteration/Generator rebuilders Wheel bearings Water pumps - rebuilders Chassis (including ball & u-joints) Constant Velocity Joints General Purpose

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150 SELECTED GREASES
Step5: Highlight grease, click web links above, use Grease name in CBEST search Product Data Sheet Search the Web 101 Selected Greases Low Noise-OEM El.motor brgs move cursor on scale of 1-10 Water washout resistance? Continuous heavy loads? Shock load protection? Good Chassis Grease? ☐ Step 3: Importance rust resistance? rust resistance? Industrial water 130 Salt water scrollbar to view all conditions ☐ Step 2: CONDITIONS -120 Heavy-duty on highway Passenger Car/Light Truck General Purpose Industrial, Marine, or Food Step 1: APPLICATION Mobile Farm Machinery Heavy Duty Off Road Select Application 110

16.

SHEET 13 OF 21

5.5

Step5: Highlight grease, click web links above, use Grease name in CBEST search SELECTED GREASES Product Data Sheet Search the Web 101 Selected Greases Low Noise- OEM El.motor brgs move cursor on scale of 1-10 Water washout resistance? Continuous heavy loads? Good Chassis Grease? Shock load protection? rust resistance? rust resistance? Industrial water 130 Salt water scrollbar to view all conditions ☐ Step 2: CONDITIONS -120 Δ Which category of application Industrial, Marine, or Food Heavy-duty on highway Passenger Car/Light Truck Castings, and Tubing pipe **∃Step 1: APPLICATION** Bearings Slides, guides, or ways Mobile Farm Machinery General Purpose Heavy Duty Off Road Select Application Flexile Couplings Wire rope 9 Railroad Chains Gears

150 **Step5**: Highlight grease, click web links above, use Grease name in CBEST search SELECTED GREASES Product Data Sheet Search the Web 101 Selected Greases Low Noise- OEM El.motor brgs move cursor on scale of 1-10 Water washout resistance? Continuous heavy loads? Good Chassis Grease? 1 Step 3: Importance Shock load protection? rust resistance? rust resistance? Industrial water 130 Salt water 世 scrollbar to view all conditions Step 2: CONDITIONS Which category of applicatior Railroad Industrial, Marine, or Food Heavy-duty on highway Passenger Car/Light Truck General Purpose Wire rope Bearings Slides, guides, or ways Castings, and Tubing pipe **JStep 1: APPLICATION** Mobile Farm Machinery Ball, roller, or needles Plain (journal) bearing Which kind of bearing? Heavy Duty Off Road Select Application Flexile Couplings Chains Gears

☐ Step 1: APPLICATION	Scrollbar to view all conditions	Step 3: Importance move cursor on scale of 1-10	
Select Application Mobile Farm Machinery Railroad Industrial, Marine, or Food		Good Chassis Grease?	101
Heavy-duty on nignway Passenger Car/Light Truck General Purpose Heavy Duty Off Road ☐		Industrial water	Search the Web
Which category of application Chains △ Wire rope ────────────────────────────────────		Salt water rust resistance?	Product Data Sheet SELECTED GREASES
Slides, guides, or ways Gears Castings, and Tubing pipe Flexile Couplings		Water washout resistance?	Step5: Highlight grease, click web links above, use Grease name in CBEST search Selected Greases
Which kind of bearing? Ball, roller, or needles Plain (journal) bearing		Continuous heavy loads?	
Which bearing type? Spherical roller bearing Conveyor belt or roll bearing Needle bearing Roller bearing Ball bearing		Low Noise- OEM El.motor brgs	

150 Enter Optional CustomerName for report d Search the Web Product Data Sheet SELECTED GREASES Step5: Highlight grease, click web links above, use Grease name in CBEST search 8 Ulti-Plex HV Synthetic Grease EP RPM Heavy Duty LC Grease EP NI RPM Heavy Duty LC Grease EP N Ulti-Plex Synthetic Grease EP Jltra-Duty Grease EP NLGI 0 Ultra-Duty Grease EP NLGI 2 Ultra-Duty Grease EP NLGI Molv MAX Grease EP NLGI Dura-Lith Greases EP NLGI 000 Dura-Lith Greases EP NLGI Dura-Lith Greases EP NLGI Jlti-Plex Grease EP NLGI 2 Step 4: Printable Report Jlti-Plex Grease EP NLGI Super Pemalube Grease Delo Grease EP NLGI 00 Delo Grease EP NLGI 2 Ulti-Plex Grease EP NL Moly Grease EP NLGI Moly Grease EP NLGI Delo Grease EP NLGI Rykotac Grease EP RPM Arctic Grease SRI Grease NLGI Selected Greases Low Noise- OEM El.motor brgs move cursor on scale of 1-10 Water washout resistance? Continuous heavy loads? Step 3: Importance Good Chassis Grease? Shock load protection? rust resistance? rust resistance? Industrial water Salt water scrollbar to view all conditions Single Point auto-lubricator Other, like container pumps NSF H1-Incidential food co NSF H2-Non food contact -ood machinery application, Select Application Method Heavy Loads required EP? 122 ☐ Step 2: CONDITIONS Approx. bearing diameter Greater than 5000 RPM Greater than 6 inches 3all, roller, needle rpm 2000 TO 5000 RPM 500 TO 2000 RPM ess than 500 RPM 3 to 6 inches Less than 3 inches Moly required? Central system Aerosol spray ess than 3% Grease gun Spray Gun fanual & € Castings, and Tubing pipelth Which category of applicatior bearing Ball, roller, or needles Plain (journal) bearing Railroad Industrial, Marine, or Food Passenger Car/Light Truck Bearings I Slides, guides, or ways Step 1: APPLICATION Mobile Farm Machinery Heavy-duty on highway Spherical roller bearing Which kind of bearing? Heavy Duty Off Road Which bearing type? conveyor belt or roll Select Application General Purpose Flexile Couplings Needle bearing Roller bearing Ball bearing Vire rope Chains Gears

APPLN. FILING DATE: March 12, 2004 TITLE: Product Selection Expert System

INVENTOR(S): ADRIAN D'SOUZA ET AL. APPLICATION SERIAL NO: 10/800,046 **SHEET 17 OF 21**

150 Enter Optional CustomerName for report Product Data Sheet
SELECTED GREASES
Step5: Highlight grease, click web links
above, use Grease name in CBEST search 09 RPM Heavy Duty LC Grease EP NL Ulti-Plex HV Synthetic Grease EF RPM Heavy Duty LC Grease EP <u>G</u>12 Ulti-Plex Synthetic Grease EP Ultra-Duty Grease EP NLGI 2 Dura-Lith Greases EP NLGI Ultra-Duty Grease EP NLGI **JItra-Duty Grease EP NLGI** Moly MAX Grease EP NLGI Jlti-Plex Grease EP NLGI 2 ☐ Step 4: Printable Report Ulti-Plex Grease EP NLGI Jlti-Plex Grease EP NLGI Super Pemalube Grease Delo Grease EP NLGI 00 Dura-Lith Greases EP NI Dura-Lith Greases EP NI Moly Grease EP NLGI 2 Moly Grease EP NLGI Delo Grease EP NLGI Delo Grease EP NLGI Search the Wet RPM Arctic Grease Rykotac Grease EF SRI Grease NLGI Selected Greases Low Noise- OEM El.motor brgs move cursor on scale of 1-10 Water washout resistance? Continuous heavy loads? Step 3: Importance Good Chassis Grease? Shock load protection? rust resistance? rust resistance? Industrial water Salt water scrollbar to view all conditions Other, like container pumps NSF H1-Incidential food co Single Point auto-lubricator Central system Select Application Method Heavy Loads required EP? -ood machinery application 124 Approx. bearing diameter Step 2: CONDITIONS Greater than 5000 RPM Greater than 6 inches 3all, roller, needle rom 2000 TO 5000 RPM 500 TO 2000 RPM ess than 500 RPIV ess than 3 inches Moly required? ess than 3% Aerosol spray to 6 inches Grease gun Spray Gun Manual 88 ⊴ Which category of applicatior Castings, and Tubing pipe the Flevile Compliance Passenger Car/Light Truck Wire rope Bearings Slides, guides, or ways onveyor belt or roll bearin Industrial, Marine, or Food Step 1: APPLICATION Mobile Farm Machinery Heavy-duty on highway Spherical roller bearing Which kind of bearing? Heavy Duty Off Road Which bearing type? Select Application General Purpose Flexile Couplings Needle bearing Roller bearing Ball bearing Gears

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3 Enter Optional CustomerName for report SELECTED GREASES
Step5: Highlight grease, click web links
above, use Grease name in CBEST search 8 RPM Heavy Duty LC Grease EP NI Moly MAX Grease EP NLGI 1 Step 4: Printable Report Moly Grease EP NLGI 2 Product Data Sheel Moly Grease EP NLGI Search the Web Selected Greases Low Noise- OEM El.motor brgs move cursor on scale of 1-10 Water washout resistance? Continuous heavy loads? Shock load protection? Good Chassis Grease? Step 3: Importance rust resistance? rust resistance? Industrial water Salt water scrollbar to view all conditions other, like container pumps NSF H1-Incidential food co Single Point auto-lubricator Central system Grease gun Less than 3% Select Application Method Heavy Loads required EP? -ood machinery application 126 Step 2: CONDITIONS Approx. bearing diameter Greater than 5000 RPM Greater than 6 inches Sall, roller, needle rpm 2000 TO 5000 RPM 500 TO 2000 RPM ess than 500 RPM ess than 3 inches Moly required? **Aerosol spray** to 6 inches Spray Gun Manual ◁ Which category of application Castings, and Tubing pipe Industrial, Marine, or Food Heavy-duty on highway Passenger Car/Light Truck onveyor belt or roll bearing Wire rope Bearings Slides, guides, or ways Spherical roller bearing Step 1: APPLICATION Mobile Farm Machinery Ball, roller, or needles Plain (journal) bearing Which kind of bearing? eavy Duty Off Road Which bearing type? Select Application General Purpose Flexile Couplings Needle bearing Roller bearing Ball bearing Gears

PLICATION SERIAL NO: 10/800,046 SHEET 19 OF 21

150 Enter Optional CustomerName for report SELECTED GREASES
Step5: Highlight grease, click web links above, use Grease name in CBEST search 9 Step 4: Printable Report Moly MAX Grease EP NL | Molv Grease EP NLGI 2 Product Data Sheet Moly Grease EP NLGI Search the Web Selected Greases 128 Low Noise- OEM El.motor brgs move cursor on scale of 1-10 Water washout resistance? Continuous heavy loads? Step 3: Importance Good Chassis Grease? Shock load protection? rust resistance? rust resistance? ndustrial water Salt water DI scrollbar to view all conditions other, like container pumps NSF H1-Incidential food co NSF H2-Non food contact 2000 TO 5000 RPM 500 TO 2000 RPM 1 ess than 500 RPM Single Point auto-lubricator Central system Grease gun Select Application Method Heavy Loads required EP? -ood machinery application No ess than 3% ☐ Step 2: CONDITIONS Approx. bearing diameter Greater than 5000 RPM Greater than 6 inches 3 to 6 inches 3all, roller, needle rpm ess than 3 inches Moly required? Aerosol spray Spray Gun Manual Castings, and Tubing pipe the Flexile Couplings Which category of application ◁ Spherical roller bearing Wire rope Bearings Slides, guides, or ways Heavy-duty on highway Passenger Car/Light Truck Railroad Industrial, Marine, or Food onveyor belt or roll bearin Step 1: APPLICATION Mobile Farm Machinery Ball, roller, or needles Plain (journal) bearing Which kind of bearing? Heavy Duty Off Road Which bearing type? Select Application General Purpose Needle bearing Roller bearing Ball bearing Chains

150 Enter Optional CustomerName for report **SELECTED GREASES Step5**: Highlight grease, click web links above, use Grease name in CBEST search 60 Moly MAX Grease EP NLGI Step 4: Printable Report Moly Grease EP NLGI 2 Moly Grease EP NLGI Product Data Sheet Search the Web Selected Greases 154 128 666 <u>9</u>_ 2 Low Noise- OEM El.motor brgs 48 move cursor on scale of 1-10 Good Chassis Grease? 142 Water washout resistance? Continuous heavy loads? Step 3: Importance Shock load protection? rust resistance? rust resistance? Industrial water Salt water scrollbar to view all conditions Other, like container pumps NSF H1-Incidential food co NSF H2-Non food contact 134 Single Point auto-lubricator Çentral system Select Application Method Heavy Loads required EP? -ood machinery application (kg. Greater than 5000 RPM 2000 TO 5000 RPM 500 TO 2000 RPM 4 ess than 500 RPM ess than 3% No Approx. bearing diameter ☐ Step 2: CONDITIONS Greater than 6 inches 3 to 6 inches 3all, roller, needle rom ess than 3 inches Molv required? Aerosol spray Grease gun Spray Gun Manual Which category of applicatior Castings, and Tubing pipe th Wire rope Bearings Slides, guides, or ways Ball, roller, or needles Plain (journal) bearing onveyor belt or roll bearing Heavy-duty on highway Passenger Car/Light Truck ndustrial, Marine, or Food Step 1: APPLICATION Mobile Farm Machinery Spherical roller bearing Which kind of bearing? Heavy Duty Off Road Which bearing type? Select Application General Purpose Flexile Couplings Needle bearing Roller bearing Ball bearing Shains Gears

150 SELECTED GREASES
Step5: Highlight grease, click web links above, use Grease name in CBEST search 8 175 Ulti-Plex Synthetic Grease EP 163 Black Pearl Grease EP NLGI 157 Ulti-Plex Grease EP NLGI 0 Step 4: Printable Report 173 Ulti-Plex Grease EP NLGI 144 Super Pemalube Grease John Doe Product end user 29 Rykon Premium Grease 102 FM Greases EP NLGI 0 Product Data Sheet 126 FM Greases EP NLGI Search the Web 152 Rykotac Grease EP SRI Grease NLGI 2 73 RPM Arctic Grease 190 SRI Grease OEM Selected Greases 148 ∞. move cursor on scale of 1-10 Water washout resistance? Continuous heavy loads? Grease noise in bearings? Step 3: Importance Good Chassis Grease? Shock load protection? rust resistance? rust resistance? ndustrial water Salt water YNSF H2 Certification: Non food⊠ Select Low Temp operating

△ scrollbar to view all conditions Above 350F 301 to 350F 261 to 300F 213 to 260F 175 to 212F Single Point auto-lubricator Central system Grease gun Other, like container pumps Select the highest operating YNSF H1 Certification: Incidenta Single Point auto-lubricator Central system Other, like container pump leavy Loads required EP? Select Application Method ess than 3% Step 2: CONDITIONS -ood application Moly required? Aerosol sprav Aerosol sprav Grease gun Spray Gun Spray Gur Manual Manual Which category of applicatior Castings, and Tubing pipe th Flexile Couplings Ball bearing Spherical roller bearing Conveyor belt or roll bearing Roller bearing Heavy-duty on highway Passenger Car/Light Truc Wire rope Bearings Slides, guides, or ways ndustrial, Marine, or Food Step 1: APPLICATION Mobile Farm Machinery Ball, roller, or needles Plain (journal) bearing Which kind of bearing? Heavy Duty Off Road Which bearing type? Select Application General Purpose Flexile Couplings Needlé bearing Gears